

Inventor: Cham et al.
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AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A modified viral particle comprising at least a partially delipidated viral particle, wherein the partially delipidated viral particle:

initiates a positive immune response in an animal or human; and

comprises at least one exposed epitope not usually presented to an immune system of the animal or the human by a non-delipidated viral particle; and

wherein the partially delipidated viral particle is obtained by treating a lipid-containing viral particle with an organic solvent that is not a detergent or a surfactant.

2. (Previously presented) The modified viral particle of claim 1, wherein the modified viral particle is immunodeficiency virus.

3-27. (Cancelled)

28. (Previously presented) The modified viral particle of claim 2, wherein the immunodeficiency virus is SIV or FIV.

29. (Previously presented) The modified viral particle of claim 2, wherein the immunodeficiency virus is HIV.

30. (Previously presented) The modified viral particle of claim 29, wherein the HIV is HIV-1 or HIV-2.

31. (Previously presented) The modified viral particle of claim 1, wherein the at least one exposed epitope is a gag, p6 gag, gp66, gp41, p27, or env epitope.

32. (Cancelled)

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33. (Previously presented) The modified viral particle of claim 1, wherein the modified viral particle has a lower lipid content in a viral envelope as compared to the non-delipidated particle.
34. (Previously presented) The modified viral particle of claim 1, wherein one or more protein on, in, or near the surface of the partially delipidated viral particle is conformationally changed as compared to one or more proteins on, in, or near the surface of the non-delipidated viral particle.
35. (Previously presented) The modified viral particle of claim 1, wherein an antigenic core of the modified viral particle remains intact as compared to the non-delipidated viral particle.
36. (Previously presented) The modified viral particle of claim 1, wherein the modified viral particle retains over 90% of major protein constituents compared to the non-delipidated viral particle.
37. (Previously presented) The modified viral particle of claim 36, wherein the major protein constituents of the modified viral particle comprise gag or env proteins.
38. (Previously presented) The modified viral particle of claim 1, wherein the modified viral particle retains at least one immunoreactive protein.
39. (Previously presented) The modified viral particle of claim 38, wherein the at least one immunoreactive protein is selected from the group consisting of p24, gp41 and gp120.
40. (Previously presented) The modified viral particle of claim 39, wherein the modified viral particle comprises at least one exposed patient specific antigen that was not exposed in the non-delipidated viral particle.

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41. (Currently amended) The modified viral particle of claim 1, wherein the modified viral particle is produced by exposing the ~~non-delipidated~~ lipid-containing viral particle to a delipidation process.

42. (Currently amended) The modified viral particle of claim 41, wherein the delipidation process comprises:

contacting ~~[[a]]~~ the lipid-containing viral particle in a fluid with ~~a first~~ the organic solvent that is not the detergent or the surfactant and is capable of extracting lipid from the lipid-containing viral particle;

mixing the fluid and the ~~first~~ organic solvent for a time sufficient to extract lipid from the lipid-containing viral particle;

permitting organic and aqueous phases to separate; and,

collecting the aqueous phase containing the modified viral particle with reduced lipid content wherein the modified viral particle with reduced lipid content is capable of provoking a positive immune response when administered to the animal or the human.

43. (Currently amended) The modified viral particle of claim 42, wherein the delipidation process further comprises:

contacting the aqueous phase with a de-emulsifying agent capable of removing the ~~first~~ organic solvent; and,

separating the de-emulsifying agent and the removed ~~first~~ organic solvent from the contacted aqueous phase.

44. (Currently amended) The modified viral particle of claim 44, wherein the ~~first~~ organic solvent is an alcohol, an ether, an amine, a hydrocarbon, an ester, or a combination thereof.

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45. (Previously presented) The modified viral particle of claim 44, wherein the ether is C4 to C8 ether and the alcohol is a C1 to C8 alcohol.
46. (Previously presented) The modified viral particle of claim 43, wherein the de-emulsifying agent is an ether.
47. (Previously presented) The modified viral particle of claim 1, further comprising a pharmaceutically acceptable carrier.
48. (Currently amended) The modified viral particle of Claim 42, wherein a concentration of the ~~first~~ organic solvent in the fluid is 0.5% ~~[[0.3%]]~~ to 2.5%.
49. (Previously presented) The modified viral particle of claim 1, wherein the at least one exposed epitope is an envelope protein epitope.
50. (Previously presented) The modified viral particle of claim 1, wherein the modified viral particle has a lower lipid content in a viral envelope than the lipid content in an envelope of the non-delipidated viral particle.
51. (Previously presented) The modified viral particle of claim 1, wherein the partially delipidated viral particle has an infectivity reduced by no more than 2.5 log units as compared to the non-delipidated viral particle.
52. (Currently Amended) The modified viral particle of claim 41, wherein the delipidation process comprises:

contacting ~~[[a]]~~ the lipid-containing viral particle in a fluid with ~~a-first~~ the organic solvent capable of extracting lipid from the lipid-containing viral particle, wherein a concentration of the ~~first~~ organic solvent in the fluid is 0.5% ~~[[0.3%]]~~ to 2.5%;

mixing the fluid and the ~~first~~ organic solvent for a time sufficient to extract lipid from the lipid-containing viral particle;

permitting organic and aqueous phases to separate; and,

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collecting the aqueous phase containing the modified viral particle with reduced lipid content wherein the modified viral particle with reduced lipid content is capable of provoking a positive immune response when administered to the animal or the human.

53. (Currently amended) A modified viral particle comprising at least a partially delipidated viral particle, wherein the partially delipidated viral particle:

initiates a positive immune response in an animal or a human; ~~and~~,

comprises at least one exposed epitope not usually presented to an immune system of the animal or the human by a non-delipidated viral particle, wherein the modified viral particle comprises at least one immunoreactive protein selected from a group consisting of p24, gp41 and gp120; and

is obtained by treating a lipid-containing viral particle with an organic solvent that is not a detergent or a surfactant.

54. (Previously presented) A modified viral particle comprising at least a partially delipidated viral particle, wherein the partially delipidated viral particle:

initiates a positive immune response in an animal or a human;

comprises an envelope, wherein the envelope comprises no extrinsic detergent or surfactant molecules; and,

comprises at least one exposed epitope not usually presented to an immune system of the animal or the human by a non-delipidated viral particle, wherein the modified viral particle retains over 90% of major protein constituents compared to the non-delipidated viral particle and the major protein constituents of the modified viral particle comprise gag or env proteins.